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SOCIETIES

THE NINETEENTH ANNUAL MEETING OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

THE American Psychological Association met at Minneapolis, December 28–30, 1910, for the nineteenth annual meeting amid fortunate external conditions as regards both weather and place of meeting. Although there were the usual number of persons in attendance at the sessions, there was a notable absence of eastern psychologists, but five registering from east of the Alleghanies. On the other hand there were a number present from the far west. There were smokers at the University of Minnesota and the usual social functions. The sessions were held in close proximity to the psychological laboratory, which was open to inspection during the week.

The one subject which more than any other dominated the meeting was the use and meaning of the word consciousness. Of the thirty-three names which appeared on the program for the three days' sessions, one third were scheduled for papers or discussions on this topic. The president's address was upon "The Place of Movement in Consciousness," and extemporaneous discussion was freer upon this subject than upon any other. The best place on the program, the morning of the second day, was devoted to a joint session with the Western Philosophical Association, the subject of the conference being "Philosophical and Psychological Usages of the Terms Mind, Consciousness, and Soul." The term soul was quickly disposed of as signifying an entitative something with which neither psychologists nor philosophers, as such, had anything to do. The term mind, in so far as it bore a similar reference to the cognitive experience, suffered a like treatment. The heat of discussion centered about the use of the term consciousness, but the speakers were, for the most part, merely descriptive or critical, and only indirectly constructive. Mr. Bode opened the discussion for the philosophers with a critique of the definitions of consciousness that have been offered by current realism, particularly of those definitions which identify consciousness with awareness or apprehension, with context or setting, and with the function of representation or meaning. The first of these fails because it must recognize two kinds of objects, namely, those which exist only when there is awareness—*e. g.*, pleasures and pains—and those which may exist apart from awareness. Hence, it is obliged to postulate two different types of response on the part of the perceiving organism, the one being a condition of awareness and the other a condition both of awareness and of those qualities or objects which exist only when there is awareness. This implication of the position finds no support in the present-day psychology of perception. The actual test between the kinds of objects is not this hypothetical difference in our responses, but in context or relationship. In applying this test, however, the realist confuses the distinction between fact and meaning or validity with the distinction between valid fact and validating experience. The same confusion occurs in the form of realism which discards awareness and finds in context or relationship the source of the differentiation between consciousness and object. It therefore has no advantage over the other theory. The assertion that consciousness is the function of meaning assumes a hard and fast distinction between sense quality and meaning which does not exist in fact. The view of instrumentalism is that consciousness is a name for the entities created by the psychologist in the furtherance of his particular purpose. It is not a distinct entity or function or relationship.

Mr. Tawney, the other speaker from the Philosophical Association, called attention to the objectivity of the ancients, and showed how, through the influence of Christianity and the Cartesian philosophy, the modern problem of consciousness arose. He sought to show how from the Cartesian point of view there came to be the doctrine of the subjectivity of the sense properties of things and the distinction between primary and secondary qualities, the independence and autonomy of the "inner life" or "inner world," and how this conception has precipitated the whole modern problem of the relation of the body and mind. Even the functional psychology is only an attempt to adjust this traditional conception of consciousness to the laws of biology and physiology. It is still the psychology of the inner life, a psychology of subjectivity, and as such it fails to lay scientific foundations for logic, ethics, the philosophy of religion, and sociology, which necessarily deal with human experience and human character. A return to the objectivity of the ancients would be a great gain. Woodbridge's definition of consciousness as an order of relation came in for a bit of commendation, and the speaker laid emphasis upon the phenomenon of immediate value as the distinctive mark of the kind of behavior with which psychology chiefly deals.

Mr. Angell spoke first for the psychologists, reviewing the steps by which the terms soul and mind had disappeared from current psychological discussion, and indicating certain evidences to show that the term consciousness was about to suffer a like fate. Genetic psychology, it was pointed out, could make no use of the term with its traditional connotation as signifying something open only to private introspection. In this field it was shown that the scientist could make use of such terms only as indicated behavior. The speaker further contended that even in the study of human psychology attention was being given more and more to the objective facts connected with a mental state. Thus in the study of the memory psychologists attempt to find out the number of repetitions necessary to learn a list of nonsense syllables, the most economic periods of work and rest in the learning, the most economic method of dividing a selection to be learned, etc.—all objective facts. Facts of this sort, the speaker thought, point to an increasing interest in the study of behavior and a decreasing interest in the study of "consciousness," a tendency so strong as to presage the possible disappearance of the word consciousness from psychological literature.

Mr. Lindley was the other speaker for the psychologists. He called attention to the fact that the breaking up of an established order in science, as well as in government, usually came about by the uprising of neglected interests. The present dissatisfaction with the term consciousness he thought was a case in point. For a long time psychologists had insisted on using the term to mean a state of awareness, and had thus thrust out of the proper realm of psychology a large amount of material most intimately connected with states of awareness, and had invoked the phrase unconscious cerebration to take care of the neglected data. This was an unsatisfactory procedure; and after suffering this sort of treatment for a time, the neglected interests were demanding recognition, and such a revision of the term consciousness as to make it more inclusive, or the discarding of the term for some other more appropriate one. The speaker cited animal psychology, experimental psychology, and abnormal psychology, all of which were finding that the facts that they must consider could not be included under the traditional concept of consciousness.

The discussion of the foregoing papers was opened by Mr. Ewer, who insisted that there was an imperative need to fill the gap between the term consciousness as used by psychologists and the term as it was used by philosophers. He, however, did not attempt to offer a definition suited to the purpose.

Mr. Judd thought that, while it was the duty of empirical psychology to define consciousness, it was a matter of little importance to psychology what connotation was given to the term by philosophy. The speaker offered a definition based on a distinction between modes of behavior. Digestive behavior differs from locomotive behavior, and the latter from behavior based on ideas. These types of behavior tend to grow into systems, and that which characterizes the human system is that its system is a world of ideas. Now, there is need for some word to define this world of ideas. Experience might be used;

this would not be in danger of being fused with physical terms. But it might be easier to escape metaphysical difficulties by defining a new term.

Mr. McGilvary did not agree with Mr. Judd in the diverse interests of psychology and philosophy. Both sciences start with a present experiential group; this group behaves in some manner: it excludes and it includes. The behavior of this group constitutes the subject-matter both of psychology and of philosophy. He pointed out, as had Mr. Lindley before him, that we know less about the brain than we do about the behavior of the present group, to which the speaker chose to give the name consciousness. The philosopher has, like the psychologist, a real empirical problem.

Mr. Thorndike, who was scheduled to close the regular discussion, had presented his views somewhat at length on the previous day. At that time he had pointed out that psychologists were accustomed to make two sorts of statements about human nature: statements about consciousness, about the "inner life of thought and feeling," the "self as conscious," the "stream of thought"; and statements about behavior, "statements about the life of man that is left unexplained by physics, chemistry, anatomy, and physiology, and is regularly compassed for common sense under the terms intellect and character." The prevailing attitude in psychology has been to restrict its subject-matter to statements about consciousness. But this becomes meaningless when one approaches the study of animal psychology. It appears that in human psychology, as well, it is unnecessary and perhaps inadmissible to continue a pretense that there is an impassable gap, a real discontinuity, between any and all of the animal's movements and his states of consciousness. Scientific judgments about a man's toothache, about his state of anxiety, or about his judgment that three times seven are twenty-one, do not differ essentially from judgments about his stature or his temperature. The former differ in their greater dependence upon a man's verbal reports and the greater likelihood that one will have, in respect to them, certain sources of information denied to other men. But the difference is one of degree rather than one of kind. The facts of mental science need not be known to one observer only. The only kinds of facts with which science can concern itself are facts that are open to common observation. The pain of psychology must be the pain of medicine, the pain known to the physician and to the sufferer long after he had it or was it. By thus making the material of psychology objective, two noteworthy advantages are gained: first, the evidence about intellect and character offered by action and the influence of intellect and character upon action are given due attention; second, the connection of conscious states is studied as well as their composition.

In continuing the discussion after Mr. McGilvary, Mr. Thorndike pointed out that consciousness is always a feature of some particular living organism. Any definition of consciousness must take account of this, its most universal attribute. He insisted further, in opposition to Mr. Judd, that any serviceable definition of consciousness must be of such a nature as to include the behavior of the fish, the worm, and the month-old baby.

General comment upon the papers and discussion of the concept of consciousness was participated in by Messrs. Colvin, Jastrow, Huey, and others. Significantly enough there appeared no champion of the doctrine that a little while ago was used in certain quarters to define the subject-matter of psychology, namely, that psychology is the study of self-consciousness.

Consciousness was discussed from a somewhat different point of view in the president's address on ''The Place of Movement in Consciousness.'' The modern motor theory ascribes to movement practically all of the important conscious qualities and functions. Movement is said to be the fundamental element in space and time and other forms of perception and in memory, it is the selecting agent in attention, and makes possible the complex functions of recognition, meaning, and related operations of reasoning. Examination of each of these claims in turn shows, Mr. Pillsbury thought, that they have little if any basis in fact. To assert that all qualities of consciousness are motor, means, in the last analysis, that all mental qualities are derived from kinesthetic sensations. Kinesthetic sensations are obviously too poor in quality to furnish content for all perceptions and memories. Direct observation, too, shows that other qualities are present and fully as prominent as these. The attempt to place the consciousness that accompanies movement in the motor cortex seems not to be justified by the facts. The men who hold this view bring no new evidence to controvert that which led to the abandonment of sensations of innervation, and Cushing's experiment affords convincing proof that the action of the motor cortex is known only through the nerve ends in the contracting muscles.

Close examination of the argument that preparedness for movement is the deciding factor in determining attention and other forms of selection, shows that decision is made not by the movement, but by the stimuli that induce the movement. If one stops the explanation with the condition of the motor tracts, all is left to chance; and if one asks why the motor tracts are active, the explanation is in terms of stimulus and the results of earlier experience, and is not motor. The motor explanation of recognition and meaning suffers from much the same defects. To argue that recognition comes automatically when the same movements are made as when the object was first seen, is to assume that there are as many sorts of movement as there are recognizable objects, and that one may always recognize the movements when they appear. Neither of these assumptions is probable, to say nothing of being self-evident. Similarly, movements do not have meaning of themselves, and it is difficult to see how they can give to another conscious process that which they do not themselves possess. While the motor theory has gone too far, it has been of value in making the explanations of consciousness more concrete. All that it needs is the reminder that movements grow out of sensory and associatory processes, and that all are organized into a common system.

Educational psychology was given the right of way at a joint session with Section L (Education) of the American Association for the Advancement of Science. Mr. Baldwin presented the first paper, dealing with "Individual Differences in the Correlation of Physical Growth of Elementary and High-school Pupils." The paper gave a report of an investigation in the correlation of yearly and half-yearly increments of growth in height and weight of 350 boys and 435 girls from the University of Chicago elementary and high-schools, the Francis W. Parker school, and the Horace Mann school of Columbia University. The records include consecutive measurements of the same individuals for periods of from 3 to 11½ years, giving a total of 6,000 measurements. A median found for all the measurements in the two Chicago schools shows that the children in the three schools form "a practically homogeneous group." Individual measurements show that there are different correlations for growth in height and weight for both boys and girls who are above the median from the correlations for those who fall below the median height. Those above begin and end their various periods of acceleration and retardation, on the average, earlier than those below the median. For boys above the median the average maximum acceleration in absolute height occurs between thirteen and fourteen years of age, and for boys below the median it occurs between fourteen and fifteen years of age. For girls of the first class the acceleration is between 11½ and 12½ years, while for those of the second class it occurs between 12½ and 13½ years of age. The same general law seemed to hold for weight.

Individuals above or below the median height maintain their relative position throughout the period studied, but they show individual variations of slight amounts at different periods. These facts show how "one may prophesy the probable development of a boy or girl after once knowing his or her relative position in regard to the given median." However, the fluctuations in weight do not follow in detail the correlations in height, as in some cases of accelerated growth in height there was an actual loss in weight.

Mr. Freeman reported a series of experiments which had for their purpose the comparison of the scope of attention and number perception in adults and children. The objects used were spots of light one centimeter in diameter, presented tachistoscopically upon a large cotton screen, the source of light being hidden by the screen. For the scope of attention the objects were arranged at equal intervals in horizontal rows, as any other arrangement favored subjective grouping. For the perception of number the objects were grouped in various ways.

The results showed that with an increasing number of objects the percentage of correct judgments decreased more rapidly in children than in adults. This difference is not a difference in the scope of attention, for experiments showed that up to four objects the judgments of children averaged only 4.5 per cent. poorer than the judgments of adults. Since the average scope of attention for the adults proved to be between four and five, the difference in scope of attention was less than one. That the adults were able to judge more correctly when five or more objects were presented was due, it was thought, to "the tendency of the adults to subjectively group the objects presented to them." The results showed that in adults the attention was better distributed than in children. An important pedagogical conclusion from the experiments was that number work should be introduced by training in the recognition and manipulation of grouped objects.

Two papers, one on "Periods of Work in Learning" and one on "Transference of Practise," were presented by Mr. Starch. Both were reports of experimental work, the first dealing with the learning to associate certain numbers with letters. In this experiment the workers were divided into three groups. The first group worked ten minutes at a time twice a day, the second worked twenty minutes at a time once a day, and the third worked forty minutes at a time every other day. Each group worked six days. The records show that the ten-minute group improved more rapidly than the twenty-minute group, and that the latter improved more rapidly than the forty-minute group. The twenty-minute group transcribed on the average thirty-one more letters in every five minutes than the forty-minute group, and the ten-minute group transcribed on the average ten more letters than the twenty-minute group.

In Mr. Starch's second experiment, the object was to determine the effect of training in one fundamental arithmetical operation upon efficiency in other arithmetical operations. A group of persons were trained for fourteen days in mental multiplication. Before and after this training they were tested in other arithmetical processes, such as adding fractions, subtracting and dividing numbers. These tests were also made upon another group of persons who did not have the fourteen days of training. The improvement of this latter group was deducted from the improvement of the first group. This left an improvement fifteen per cent. as large as the improvement during the fourteen days. This improvement seemed due to the ability acquired during the period of practise.

A paper on "The Genesis of Attention in the Educative Process" was read by Mr. Swift. He reviewed the doctrine that clearness is the essential nature of attention and that education is the "securing of the attention to ideas which make for growth." He showed how, in the process of securing the attention, the feelings are an unsafe guide, and again how the teacher can not rely upon rewards and punishments. He pointed out that the "growing point in elementary and secondary education is the special school for delinquents and the reformatory institutions," and that the inmates of these institutions had secured the very best schools of all by their rebellion against the regular school organization. The methods employed in such schools, it was pointed out, were strikingly similar in that the teachers made a special effort to appeal to the primitive instincts of the persons to be instructed. The success of these schools, the speaker thought, pointed out to the public school the necessity of utilizing the racial and social instincts as the basis of the appeal to the attention.

Quite in keeping with the spirit of the earlier papers was Mr. Seashore's paper on "The Consulting Psychologist," which closed the joint session. This person should be "an expert in psychology who may be employed as adviser in matters pertaining to the ascertained facts of mental life with reference to their bearing upon a given practical situation, or may be employed to search for or verify such facts by a special investigation." The field to be covered is one that lies beyond that of academic teaching and research and the common application of psychology in practise. The opportunities for the consulting psychologist fall roughly into four general fields: (1) mental pathology; (2) arts, crafts, professions, and industries; (3) education; (4) eugenics. Mr. Seashore illustrated the scope of these fields in some detail and gave concrete illustrations of actual work. He further pointed out the need of the thorough training of the consulting psychologist and what in detail this training should be. He must be a man endowed with scientific freedom, yet not a pure scientist. He must be neither an administrator, a teacher, a practising physician, nor a reformer. He must be a man who, choosing the field of the consulting psychologist as a profession, will devote himself to intensive work in his chosen field, rising through a series of apprenticeships to efficiency in his work.

Discussion of this paper took the turn of personal experiences of academic psychologists in the applications of psychological facts to practical situations. Mr. Seashore, in closing the discussion, pointed out again that he was not arguing for an extension of the field of the general psychologist, but for the creation of a new department of work.

The problems of the psychology of religious experience consumed the time of an entire session, the afternoon of the second day. Mr. Starbuck read a paper on "The Instinctive Bases of Religion." He pointed out what he held had been admitted by genetic psychologists generally, namely, that there is a "sense which guides animals on through to the highest in appreciating and stressing just those reactions which are for their well-being, and depreciating and rejecting those which mean maladjustment." There are two phases which have been passed over lightly by most students. The first is the direct and immediate evaluation, in terms of the result of the reaction, of its value to the organism. This the speaker proposed to call "the cosmoesthetic sense, meaning thereby a sense of order, of relation, of proportion." Without this cosmoesthetic sense, the trial-and-error method of learning could not be learning at all, but merely a mechanically stimulated reaction-type of response. This concept, so essential to the understanding of animal life, it was held, is also essential in understanding "the non-rational successes of religion and art in feeling their way into higher modes of reaction. Religion has wilfully cultivated the non-rational and cosmoesthetic attitudes toward life."

Religion is again like the life of animals in its forward-looking aspect. This was called "the teleoesthetic sense." It is only by "the assumption of such a sense that one can explain the forward-reaching phenomena in religion and in the life of animals, the anticipatory qualities of moral intuition, the non-rational character of the poetic passion, and the apparent success of religion in feeling after an adjustment to an ideal reality."

That there is no sufficient reason for postulating an innate religious sense was the ground taken by Mr. King in a paper on "The Question of an Ultimate Religious Element in Human Nature." Contrary to the views of many thinkers, both religious and scientific, who believe that there is an ultimate religious element in human nature which they variously call a "revelation," an "inner light," a "perception of the infinite," etc., Mr. King held that religion in the individual is "a construct in which instinctive factors play a part as they do in all else that pertains to human nature." The speaker attempted to account for religion as the result of the interplay of social influences.

Mr. Haynes presented a paper on the subject of "Case-taking in the Psychology of Religious Experience." By case-taking the speaker meant a procedure similar to that of the physician or the psychiatrist in diagnosing a case. The genetic method much in vogue, and valuable as giving the background for all study of religious experience, was objected to because it reveals only the geology of religious experience and not its chemistry. The biographical method was rejected because of its long-range results and consequent snap-shot sort of data, and the questionnaire method was likewise rejected for careful diagnosis. Reliance, it was urged, could be put only upon careful laboratory methods which reveal the past experiences of the subject. This method uses as sources of information observation of the subject under questioning, tests, as in a clinic, the answers of the subject studied, and the testimony of friends and relatives, where obtainable. It includes information on the family history of the subject, his past religious history, and his present religious status. On the basis of this information it seeks to diagnose the individual's religious experience, to prescribe treatment whereby he may make the most of his religious capacities, and to watch the reaction under this treatment. One objection to the method is that the clinical picture is likely to be distorted by the bias of the case-taker. A second objection is that the facts relevant to the religious experience in question are not easy to note.

In a paper on "The Genesis of the Group Spirit," Mr. Ames sought to show that imitation does not suffice to explain how the group spirit comes to arise. Within a group there are many ego and alter relations, but these are not the only effective relations at hand. Each individual in the group is determined by the relation of the group as a whole to "ends and plans which lie beyond" the immediate situation. Thus the family has relations to every other family, "to neighborhood life, and to the plan and sphere of action characteristic of the family." "The consciousness of the family group arises, not through the imitation and opposition of its members, but through their cooperation in reaching certain ends. The sense of the group comes to consciousness with the effort to work out this cooperation. To be sure, the act is carried out through the process of stimulation and response, the response being, however, not always an imitation of the act, but more often a reaction for which the stimulation is merely the cue. The overt responses become in their turn the stimuli to other acts, which again do not necessarily imitate the act already performed, because all the acts are determined by their reference to the common end. In this interplay there arises a complex of associations and implications which is felt by the participants as something urgent and insistent, as something wholly objective.

Besides exercising a marked influence on the discussion of consciousness and the psychology of religion, animal psychology was represented on the program by two reports of experimental work. Mr. Cole reported a study on "The Relation of the Strength of Stimulus to the Rate of Learning in the Chick." Chicks were taught to discriminate the darker of two passageways in order to escape from a box. Three differences of brightness were used, one easy to discriminate, one of medium difficulty, and one of extreme difficulty. For these differences in brightness opal flash glass screens were illuminated by electric lamps placed at different distances from the screen. "For each condition of discrimination, groups of chicks of exactly the same age were trained under the influence of a weak, a medium, and a strong electric shock. When the discrimination was easy for the chick, the number of trials for perfect discrimination decreased with increase in the strength of the stimulus, *i. e.*, the stronger the stimulus the quicker the learning. For medium difficulty of discrimination this relation did not hold in the case of the stronger stimulus. It produced slower instead of more rapid learning." In this particular the results confirm those of Yerkes and Dodson for the mouse. Under difficult discrimination the chicks divided into two groups, those that learned the stronger stimulus more quickly, and those that failed to make the discrimination. The latter group included one half the number of chicks tried with the strong stimulus.

Mr. Shepard reported work with rats, cats, and ants in a labyrinth. Diagrams showing certain modifications of the labyrinth used by other experimenters were exhibited. These modifications consisted in arranging the labyrinth in such a manner that the entrance to a blind alley was not uniquely distinguishable from the entrance to the other blind alleys of the labyrinth, and in arranging the entrances to the blind alleys so that by changing certain doors the labyrinth could be transformed into a labyrinth of a different sort. The results of experimentation showed that the rats and cats learned the passageways by correcting errors near the food-box first. Of two alternate passageways of the same length, that with the least possibility of error was learned first. In other labyrinths of equal difficulty the same animals dropped the errors from both ends and learned the whole in a very short time. The ants learned labyrinths built on the plan of those used for cats even when the bottoms of the alleys were frequently changed during the learning. They learned less perfectly with light on both sides than with light on one side. Rotation of a section produced no effect. Changing the side of the light after learning controlled almost absolutely the movements of the ants. Relearning when the light was changed required three times as long as the original learning. Definite associations were retained at least a week.

A total of nine experimental studies in normal human adult psychology were reported. A paper by Mr. Hollingworth (read by Mr. Bingham) reported an experimental analysis of the normal drowsiness hallucination recorded by two observers during the past two years. This experience was described as a "flashlight perceptual fusion or complication, and is further characterized by change of type of imagery, ideal substitution, fluid association on a sensory basis, and by isolation of association trains when they tend to develop. It is accompanied by tendencies toward vastness and grandeur, by rapidly ensuing amnesia, and by absence of symbolism."

Mr. Jastrow, in discussion, called attention to the corroboration of the paper by a forthcoming book by Havelock Ellis. He thought the study was a welcome antidote to the recent Freudian movement, but raised a question as to the absence of symbolism.

Miss Richardson reported an unusual case of color-blindness. A young man about twenty-four years of age, who at one time had passed the examination for brakeman on a railroad, found difficulty in getting certain colored after-images. Investigation with the Holmgren yarns, the Nagel cards, the spectral charts, and Hering color-discs showed a complete absence of sensitivity to yellow and blue, a weak sensitivity to any but very saturated greens of a low order of light intensity, and a normal sensitivity to reds. Inquiry into the family history showed that color-blindness was congenital.

An account of some recent experiments with the projection method was presented by Miss Martin. Five series of tests were made: to ascertain whether visual images are projectable at will, and if so whether, when so projected, they are amenable to examination, and whether anything is gained by having the images so projected; to learn whether the projection method can be used advantageously to study the difference between memory and imagination; to learn whether the method is applicable to the study of illusions, hallucinations, etc.; and to learn whether the projection method can be used to advantage in investigating auditory memory and imagination. The results showed that the projection method is strong in that it furnishes an objective standard for the comparison of visual images and thus makes questions regarding visual imagery concrete; it permits an examination of the image and the standard simultaneously under the same objective conditions; it makes it easier to keep the image at the same size and distance, and diminishes the likelihood of interference by other images. Extension of the experiment showed that the method was adequate to the study of the various processes to which it was applied.

Mr. Arps gave an introspective analysis of certain tactual phenomena. Judgments were made on the intensity of standard and comparative pressure stimuli applied to the upper phalanges of the index and middle fingers. The introspections center chiefly about the subjective variations of the standard stimulus. The results show that the comparative stimuli render constancy in intensity in a given norm impossible. This seems due to the assimilative effects which are most efficient within certain limits of a series, above and below which assimilative effects are minimal or entirely lacking. The fluctuations varied according to whether the normal stimulus preceded or followed the comparative stimulus, as to whether the comparative stimulus was given in the ascending or the descending series, and according to the duration of the norm and the comparative stimulus. As to the duration of the stimulus, the results seem to show that the normal stimulus has an effect on the comparative stimulus similar to that of the comparative on the normal in regard to intensity. The above results were obtained when the norm varied in duration but remained constant in intensity. When the standard stimulus remained constant both in intensity and duration, there was no noticeable assimilative effect. Duration, then, seems to be the determining factor in the production of assimilation.

A useful demonstration of tonal fusion was given by Mr. Bingham. He showed how a clang could be reconstructed by a method of synthesis. The reeds of a harmonium are tuned to the exact pitch of a series of forks that represent all the partials which have been found to be components of the clang. The forks are mounted on resonance boxes, and by means of a depression bar there is played on the harmonium a loud chord which includes among its notes all the pitches of the desired partial tones. The tuning-forks are set into sympathetic vibration. If the loudly sounding harmonium is now suddenly silenced, there is heard a simple clang, strikingly resembling in color the sound of the monochord. Indeed, the listener is at first apt to judge that the monochord has been actuated. The forks used in the demonstration were the Koenig series c′, g′, c″, e″, 7b flat″, c‴, d‴, e‴. These are the upper partials of the fundamental 128 v.d. Although no fork of 128 v.d. was among the series, the clang as heard seemed to have that pitch. The explanation is that since each of the forks makes with its next neighbor in the series a subjective difference of 128 v.d., the total effect is a difference tone sufficiently intense to predominate strongly over the objectively weaker higher tones, and to serve as a fundamental for the clang.

A case of colored gustation was reported by Miss Downey. Through reliance upon the color and tactual components of taste blend, a young man was enabled to pass accurate judgments upon taste qualities. His thresholds for the presence and the recognition of sweet, sour, bitter, and salt were found to be average. Extensive stimulation and the presence of an odor increased the vividness and the persistency of the taste colors. They did not appear in minute stimulation. These taste colors were definitely localized in the mouth, were of a hallucinatory vividness, and possessed a uniform color tone and persistence under stimulation. The presence of objective colors introduced noticeable conflicts with taste colors; they tended to conflict with each other, to modify each other, and to fuse at times. The interpretation offered was that the synesthesia was an actual part of the perceptual fusion and in the present case easily accounted for by the color stimulation present in taste experiences.

Abnormal psychology, mentioned frequently in the course of the general discussions, came in for one paper. Mr. Huey called attention to certain matters of classification and terminology which had been settled tentatively by the American Association for the Study of the Feeble-minded at its Lincoln meeting, May, 1910. This classification follows:

1. The term feeble-minded is to be "used generically to include all degrees of mental defect due to arrested or imperfect mental development as result of which the person so affected is incapable of competing on equal terms with his normal fellows or managing himself or his affairs with ordinary prudence."

2. The feeble-minded are divided into three classes, viz.:

Idiots.—"Those so defective that the natural development never exceeds that of a normal child of about two years."

Imbeciles.—Development higher than that of an idiot, but not exceeding that of a normal child of about seven years.

Morons.—Higher than imbeciles, but not exceeding the mental development of a normal child of about twelve years.

Mr. Huey discussed this classification, pointing out that the Binet scale has proved itself most useful thus far in determining mental age, but other scales of norms are needed. Following Binet's suggestion, it may be well to apply these terms only when the mental retardation amounts to at least three years, or to at least two years when the child is not above nine. The term *retarded* may be used for the lesser degrees, permitting *backward* as its popular equivalent. Examination and classification in these terms, at the Illinois Institution, shows imbeciles to be the most numerous, morons next, and idiots least, though a mental age of one and a half to two years is the most frequent of all. Admissions above the mental age of ten are infrequent and hard to retain. Above twelve they are almost unknown, though this is the most populous and most troublesome zone of defect. Special study of 32 of these border cases shows lines of transition from feeble-mindedness to ''normal'' dullness and instability, to neurasthenia, hysteria, insanity, epilepsy, and suggests these and other groupings of border cases. The characteristics of each group should be brought out by further clinical studies. New tests for local geographical orientation, for ability to classify objects, and for levels of play seem likely to be of service.

On recommendation by the council, amended by the association, the following resolutions were voted: (1) that the association extend a hearty welcome to the Seventh International Congress of Psychology for its meeting in 1913; (2) that in place of the regular meeting in December, 1912, the association meet in the spring of 1913 in conjunction with the International Congress; (3) that a committee, composed of Messrs. Cattell, Münsterberg, Sanford, Titchener, Watson, and Bingham, be appointed to cooperate with the officers of the congress.

Professor Carl Seashore was elected president and Professor W. V. D. Bingham was elected secretary for the ensuing year. Two places on the council were filled by the election of Professors Pierce and Warren. Through the secretary announcement was made of the proposed publication of *The Journal of Animal Behavior* and the *Animal Behavior Monograph Series,* both publications to begin with the first month of 1911.

M. E. HAGGERTY.

INDIANA UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

Theology and Human Problems: a comparative study of absolute idealism and pragmatism as interpreters of religion. EUGENE WILLIAM LYMAN. New York: Charles Scribner's Sons. 1910.

Professor Lyman has been known for some time to his colleagues as a successful teacher and the author of a number of thoughtful articles which have revealed a sound philosophical training and an agreeable literary style; but this book, which consists of the Nathaniel William Taylor lectures delivered before the Divinity School of Yale University in the year 1910, is his first introduction to a larger public.

It may be said at once that the impression which is produced is a favorable one. The author shows himself a theologian of independence, grasp, and virility, a welcome addition to the list of constructive thinkers in the field of the philosophy of religion.

In the first place, he is master of a clear and lucid style. No one is for a moment in doubt as to what he means, and he has, moreover, the faculty, possessed in supreme degree by the great leader of the pragmatists, whose untimely departure we all mourn, of vivid and happy illustration.